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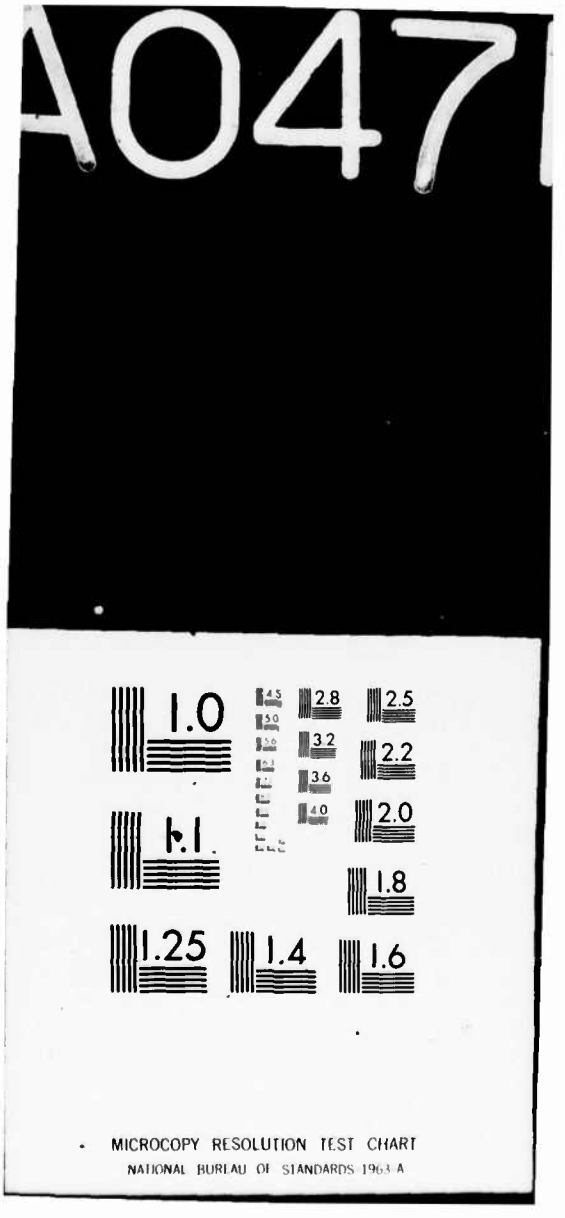
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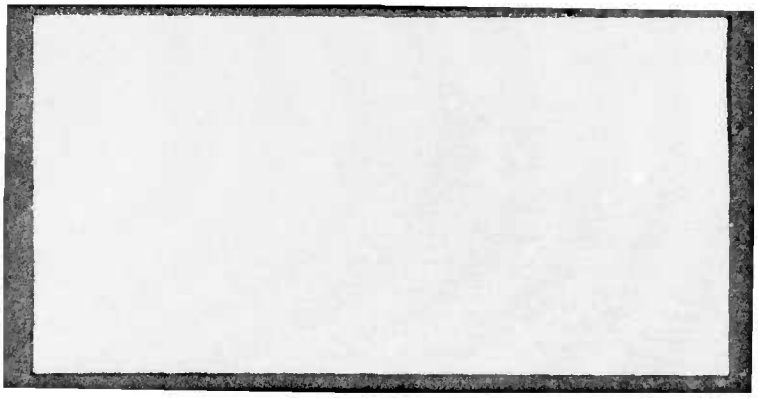

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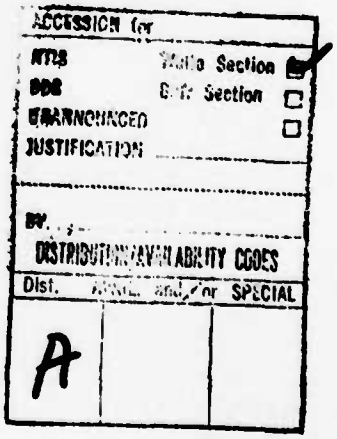

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Defense installations are important resources, both to the Department of Defense and to communities near those installations. This research provides an analysis of the response of the Dayton area economy to sharp drops in its export sector employment during 1968 to 1975. It was felt that such an approach could be a useful guide to DOD in deciding any possible future actions which could reduce employment at a defense installation in the Dayton metropolitan area. This analysis may also act as a guide for evaluation of the potential economic impact of other defense realignments in other geographic areas. The analysis found that the Dayton SMSA lost many manufacturing jobs, but that it, nevertheless, had a resilient economy which proved capable of absorbing the increased unemployment caused by the loss of these jobs. One reason for this resiliency was the local and national shifting of emphasis from manufacturing to non-manufacturing employment. Many Dayton SMSA manufacturing workers lost their jobs during the early 1970s, but, apparently, few of them left the area. The basic tools used in this study were export-import sector analysis and analysis of the migration of the work force into and out of the area.

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AN ECONOMIC ANALYSIS OF THE DAYTON SMSA

(1968-1975)

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Logistics Management

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has been accepted by the undersigned on behalf of the faculty of the School of Systems and Logistics in partial fulfillment of the requirements for the degree of

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COMMITTEE CHAIRMAN

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CHAPTER I

INTRODUCTION

Problem Statement

Political pressures are often brought to bear on the Department of Defense (DOD) when it makes decisions which, in effect, could reduce the value of an installation to its host community--through manpower reductions or base closures, for example. A 1969 DOD study of military base closures made the above point and, in addition, emphasized that these pressures are by no means a new problem:

> During an era of revolutionary technological change, military installations, like their associated weapons systems, may often become outmoded. By 1960, the United States had acquired a considerable array of military facilities, both foreign and domestic. While international pressures often worked toward closing foreign bases, internal U.S. political pressures were usually directed toward retaining continental U.S. facilities long beyond their military usefulness [12:5].

It is an understatement to say that these pressures can make the job of the Defense decision maker and manager difficult. However, these external pressures or influences are a fact of life and DOD must cope with them. It would be highly beneficial to the DOD to maintain a store of knowledge of the economic environments of its installations. The problem is not that DOD does not collect and

maintain data on the economic aspects of important defense regions and areas. The problem is that there is little analysis of such economic data to reveal the strengths and weaknesses of the nearby local economies which play host to defense installations. Knowledge of this sort, as well as knowledge of how local economies have reacted historically to economic problems facing them, could be very useful to DOD. Anytime DOD makes a decision affecting the existence of one of its installations, it must also consider the impact on the local community. At present it lacks the ability to assess this community impact.

Justification

The Department of Defense is charged with the responsibility of assuring that certain national security objectives are met. The DOD is provided with limited resources with which to accomplish these objectives. Defense installations and defense employees are some of the most obvious defense resources.

It is not unusual for DOD, in attempting to adjust manpower levels at an installation, to be stymied by objections from local civic leaders, citizens, and their political representatives. Such opposition need not necessarily be well informed to be successful. It need not even be based on a concern for an effective and efficient national defense. It is understandable for the community

which hosts a defense installation to look upon this installation as a very desirable source of local income. The community naturally protests when some action threatens to reduce or eliminate the local income generated from this source.

This conflict of interest is understandable. Whenever it occurs, it, somehow, has to be resolved. Therefore, it is desirable for DOD to obtain whatever tools or knowledge are available in order to help it influence the resolution of the conflict in its own favor. Knowledge of the economic base of the area in which an installation is located can be a useful tool in the effort to overcome local objections to actions DOD would like to take with regard to that installation. For example, knowledge of the historical impact of job losses on a community can provide DOD with a basis for estimating what it may expect the impact to be, should it reduce the manpower or close an installation in a particular area. If DOD is ill-prepared to counter the resistance to its proposed actions, it will lose some of its control in the situation.

The plight of the Defense Electronics Supply Center (DESC) in the Dayton, Ohio, metropolitan area is one example (25:5). The Defense Logistics Agency (DLA), formerly known as the Defense Supply Agency, developed proposals in the spring of 1977 to transfer about 800 DESC jobs outside the Dayton area. To date, it has been unable

to follow through with this action because of the opposition of DESC employees, local civic leaders, and state, local and national politicians. The DLA apparently by-passed the legal requirement to develop an economic impact statement, which would have provided an analysis of the possible impact of its actions.[1] This example illustrates the fact that the DOD has numerous outside pressures and forces with which to contend as it attempts to manage its installations. Whereas DOD approaches its installations management task with the intention of providing for national defense at least cost, the opposition often is ruled only by its own parochial interests.

The challenge is clear. The DOD has to make the most efficient use of its resources in order to be able to provide the most effective national defense. To the extent that pressures external to the DOD interfere with efficient resource management, DOD must be prepared to overcome these external pressures. Top DOD decision makers need to be well informed about the economies of the areas within which DOD installations are situated.

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[1]The National Environmental Policy Act (NEPA) of 1969 required that all federal agencies determine, to the fullest extent possible, the impact of any decisions which may affect the environment (4:2).

Background

The Dayton SMSA Economy

In 1975, the Dayton Standard Metropolitan Statistical Area (SMSA)[2] was forty-fourth largest in the United States in terms of population, 852,900 (10:94). The Dayton SMSA is composed of four counties: Montgomery (population 599,100), Greene (127,700), Miami (89,300), and Preble (36,800). Dayton, whose population was 202,200 in 1975, is located in Montgomery County and is the central city in the SMSA (13:C-154).

Average total employment[3] in the Dayton SMSA in 1975 was 326,200. Average total manufacturing employment for 1975 was 102,400 and average total non-manufacturing employment was 223,800 (see Table 3.1).

The Dayton SMSA underwent some profound changes during the period 1970 to 1975. When the decade opened, the National Cash Register Company (which later became the NCR Corporation) was one of the Dayton SMSA's largest employers with about 20,000 employees (19:1). NCR

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[2]An SMSA is a geographical entity for which various government statistical agencies, such as the Bureau of Labor Statistics (BLS) and the U.S. Census Bureau, publish economic and demographic data. An SMSA contains at least one central city of 50,000 or more population. The SMSA includes all of the county in which the central city is located and may include other adjacent counties with common social and economic ties.

[3]Total employment is defined here as total non-agricultural wage and salary employment.

annually pumped $195,000,000 into the local economy. By 1975, NCR employment cutbacks in Dayton left only 5,000 employees and a $105,000,000 payroll (19:1). The NCR employment cuts were the worst that Dayton experienced during this period, but they were by no means the only large cuts, as Table 1.1 illustrates.

TABLE 1.1

EMPLOYMENT CUTBACKS IN THE DAYTON SMSA (1970-75)

Chrysler Airtemp	6,000 jobs
Chrysler Plant One	2,600 jobs
Dayton Press	500 jobs
Bergstrom Paper	450 jobs
NCR	14,000 jobs
Precision Rubber Products (closed)	250 jobs
Joyce Cridland (closed)	150 jobs
Sunshine Biscuit (closed)	450 jobs
Defense Electronics Supply Center	1,200 jobs
Total	25,600 jobs

Source: Darwin Sator, "Jobless Rate Stable," (The Dayton Daily News, January 30, 1977), Section D, p. 9D.

In 1971, the Dayton Department of Human Resources claimed that wage and salary employment dropped by 30,000 during 1970 and 1971 alone. The loss, by industry type, was 40 percent manufacturing, and 35 percent non-manufacturing (9:7). Although the manufacturing share of these employment losses was large (12,000 jobs), many more manufacturing employment losses were to come. Between 1970 and 1977, the Dayton SMSA lost approximately 30,000

manufacturing jobs. In 1975 alone, 9,500 factory jobs were lost to the area (18:9D). Although such a drop certainly reflects the existence of problems with the Dayton SMSA economy itself, one should bear in mind that local economic problems are also precipitated by changes in the national economy. This point will be elaborated upon later.

The Dayton SMSA work force is becoming more concentrated in non-manufacturing industries and less concentrated in the manufacturing industries (see Table 1.2).

TABLE 1.2

DAYTON SMSA EMPLOYMENT

Year	Avg Mfg Empl (000)	Avg Nonmfg Empl (000)	Total Empl (000)
1968	127.69	188.25	315.94
1969	133.28	198.26	331.54
1970	126.27	207.25	333.52
1971	110.88	207.57	318.45
1972	112.91	206.40	319.31
1973	116.95	214.94	331.89
1974	113.03	224.56	337.59
1975	102.39	223.82	326.21

Source: Ohio Bureau of Employment Services. Ohio Labor Market Information: Employment, Hours, and Earnings in Ohio, 1968-1975 (Columbus: Ohio Bureau of Employment Services).

Again, one should bear in mind the impact of national conditions. The shifting emphasis from manufacturing to non-manufacturing employment locally is only part of the

larger national shift from manufacturing to non-manufacturing. Between 1968 and 1975, average manufacturing employment in the Dayton SMSA fell by 19.8 percent while non-manufacturing employment rose by 18.9 percent. Over this same period of time, total employment rose approximately 3 percent. Projections by the Ohio Bureau of Employment Services (OBES) indicate that the SMSA will have roughly 50,000 new jobs by 1985. Two non-manufacturing industry divisions (Services, and Wholesale and Retail Sales) alone will account for more than three-fifths of these new jobs (5:12).

In spite of the employment turmoil suffered by the Dayton SMSA, its unemployment rate was low in relation to the state and national rates. During the period, 1968 to 1975, its unemployment rates were lower than both state and national rates except in 1971 (see Table 1.3).

The movement of workers from manufacturing into non-manufacturing jobs may be part of the reason for this relatively stable rate of unemployment. Unemployment rate stability will be further discussed in Chapter III. OBES statistics for 1968-1975 showed large increases in several non-manufacturing categories (see Table 1.4). Wholesale and Retail Trade employment rose from 55,570 to 67,100, a 20.7 percent increase. Employment in Finance, Insurance, and Real Estate rose from 8,570 to 11,780, an increase of 37.5 percent. Employment in Services industries rose from

TABLE 1.3

UNEMPLOYMENT TRENDS (PERCENTAGE)

Year	Dayton SMSA	Ohio	U.S.
1968	3.0	3.4	3.6
1969	3.3	3.5	3.5
1970	5.0	5.4	4.9
1971	6.7	6.5	5.9
1972	5.0	5.5	5.6
1973	4.0	4.3	4.9
1974	4.5	4.8	5.6
1975	8.3	9.1	8.5

Source: Ohio Bureau of Employment Services. Ohio Labor Market Information: Employment, Hours, and Earnings in Ohio, January 1977 (Columbus: Ohio Bureau of Employment Services).

TABLE 1.4

DAYTON SMSA NON-MANUFACTURING EMPLOYMENT

Employment Category	1968 Employment (000)	1975 Employment (000)
Wholesale and Retail Trade	55.57	67.10
Finance, Insurance and Real Estate	8.57	11.78
Services and Miscellaneous	42.10	56.90
Government	57.40	63.40

Source: Ohio Bureau of Employment Services. Ohio Labor Market Information: Employment, Hours, and Earnings in Ohio, January 1977 (Columbus: Ohio Bureau of Employment Services).

42,100 to 56,900, a 35.2 percent increase. Employment at all levels of government rose from 57,400 to 63,400, a 10.5 percent increase. The analysis of these employment statistics is discussed in Chapter III.

The raw employment statistics themselves did not provide an adequate explanation for the SMSA's stable unemployment rate. Aggregate figures such as those presented above do not show whether or not the workers laid off by Dayton manufacturing industries later found jobs in Dayton non-manufacturing industries. For example, from 1968 to 1975 there was a net decrease in manufacturing employment of 25,300 and a net increase in non-manufacturing employment of 35,570 (see Table 1.2). These aggregate figures do not make it clear whether some, all, or none of the 25,300 workers who lost their jobs found new employment in Dayton's non-manufacturing industries. The non-manufacturing industries acquired 35,570 new workers, but it was not clear whether some, all, or none of them came from the manufacturing work force. One possible explanation is that the 25,300 manufacturing employees may have left the area and the 35,570 new non-manufacturing employees may have migrated into the area. This would explain the stable unemployment rate in Dayton. Unemployment rates would not have increased because all those workers who were laid off departed from the area. Analysis

of the increases and decreases in non-manufacturing and manufacturing employment, respectively, are presented in Chapter III.

The United States Economy

At this time a brief discussion of the interrelationship of the national and local economies is pertinent. Events affecting the Dayton SMSA economy are not dependent solely on local factors. The SMSA economy is also dependent on the state of the national economy. The various aspects of the national economy, such as the unemployment rate and gross national product, are subject to changes resulting from the undulating nature of the U.S. business cycle. The federal government's fiscal and monetary policies are shaped to dampen the effects of the business cycle on factors such as unemployment, volume of goods and services produced, and interest rates. The impact of the government's attempts to influence these aspects of the national economy is felt at the local level, because, after all, the national economy is made up of a myriad of local economies. Local unemployment, production and interest rates themselves are undergoing change and national economic policy is one of the causes of this local change. This is not meant to imply, however, that local economic patterns are entirely dependent on the national economy. The reduction of unemployment at NCR in Dayton, for

instance, was due largely to factors within the machinery industry itself.

In light of the impact of the national economy on local economic conditions and to provide a clearer perspective on the time period to be investigated in this thesis, a brief review of national economic trends and conditions of the 1965-1971 period is appropriate.[4]

U.S. participation in the war in Vietnam was a significant factor in the inflation and boom in the national economy during the latter half of the 1960s. By the middle of 1965, U.S. expenditures for the war began to rise rapidly. From early 1965 to the first quarter of 1967, defense spending increased by 40 percent in real terms. The level of government spending on non-defense programs was also rising. Unfortunately, the government did not act quickly to control the impact of the sharp increase in its spending.

In early 1965, there was little slack in the U.S. economy. For the second quarter of 1965, the unemployment rate was just under 5 percent. The average number of weekly hours in manufacturing employment was the highest it had been since World War II and 89 percent of the

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[4]This section draws heavily upon the discussion of the U.S. economy during 1965-1968 presented in two publications--National Economic Policy: The Presidential Reports (8) and The National Economy and the Vietnam War (7:17-23).

manufacturing industry capability was in use, the highest utilization rate since 1955. In 1965 there was a relatively sudden demand for military commodities. The demand was satisfied from existing inventories and from unused capacity within the defense industries. Inevitably, the level of real output by industry fell behind the accelerated government spending. Since this caused an imbalance on supply and demand, prices escalated and inflation became a serious problem. From the second quarter of 1965 to the fourth quarter of 1966, the consumer price index rose at the rate of 3 percent per year. The international balance of payments situation worsened, because of fixed exchange rates, as imports were attracted to the U.S. by the inflated market.

The Federal Reserve Board attempted to cut inflation in December, 1965 by increasing the discount rate. However, this was not effective since bank assets and the money supply continued to increase. Economic conditions are dependent on fluctuations in the business trade cycle. The business cycle itself is affected by the monetary policy of the Federal Reserve Board. Economic conditions are also affected by the government's fiscal policy. Government taxation and spending policies, if timed inappropriately, can be detrimental to local economies as well as the national economy.

The Administration's 1966 budget called for even higher levels of non-defense spending. Unfortunately, the Administration chose not to support the rising expenditures through increased taxation, but relied instead on deficit spending. The U.S. taxpayers, instead of being taxed directly by their government, were taxed by the inflation kindled by their government. The federal budget deficit went from 3.3 billion dollars in the fourth quarter of 1966 to 13.2 billion dollars in the third quarter of 1967.

The Federal Reserve took action to halt the increase of the money supply in late 1966 and it also temporarily suspended the tax credit for new investment. After mid-1966, the rate of placement of defense orders stabilized. This situation, along with the Federal Reserve's monetary policy, lessened demand pressures and tempered the sharp decline in inventory accumulation. However, this monetary policy was relaxed at the first sign that inflation was slowing.

Wages, as well as prices, rose during 1966 and 1967. Hourly wages increased sharply, but the growth of output per manhour slowed. In spite of all these signs of an ailing economy, Congress did not consider increasing taxes until August, 1967. The year ended without any action being taken in spite of the rise in total government

spending and the increasing budget deficit. The stage was set for more inflation in 1968.

In November, 1967, the British devalued the pound. The U.S. balance of payments situation was basically weak. The pound's devaluation encouraged an attack on the U.S. dollar, further weakening the overall payments position. Then, on January 1, 1968, President Johnson announced the implementation of mandatory controls on investment abroad. Despite this action, the U.S.'s balance-of-payments problem persisted. The country's bout with inflation, originating with increased Vietnam War spending in 1965, also continued. The economy peaked in 1969 and then entered a recessionary period. The gross national product fell and the unemployment rate increased.

By 1971, the economy was beginning to recover from the recession. Monetary policy was a key instrument in the attempt to aid the recovery. Although the monetary growth rates were very high during the first half of 1971, the economy did not expand nearly as quickly as expected. Apparently, the reason for this lack of expansion was that a large part of the increase in the money stock went to satisfy an increased desire on the part of the public for money balances. During the summer of 1971, the rate of inflation was still high. There was a hesitancy on the part of the Federal Reserve to continue expansion of the money supply to increase productivity, thereby cutting

unit labor costs, because an inflation psychology seemed to be in effect in the country. It was therefore feared that an attempt to expand the economy might actually restrict it since additional increases in monetary growth could intensify public fears of inflation and thereby depress spending.

Also, the Federal Reserve anticipated that expansion could further aggravate the U.S. international financial problems if an increase in funds available for investment abroad kindled fears that American inflation would again accelerate. On August 15, 1971, the Nixon administration suspended the convertibility of dollars to gold and it imposed a surcharge on imports. Both actions were taken in an attempt to begin some solution to the international financial problem since this was one of the keys to a solution of the problems which confronted the home economy.

The foregoing chronology sets the stage for the period to be investigated in this thesis.

Literature Review

A review of the literature for material which examined the economic impact that military installations have on nearby communities revealed a number of works which analyzed the effect on a community after an installation had been closed. In her report, "An Overview of

Studies of the Impact of Military Installations and Their Closings on Nearby Communities," Nora Buckley stated that many studies had been made of closed bases but few such studies had investigated the economic impact of an existing base (6:5).

One report which did examine this latter situation was prepared by Hammer, Siler, George Associates for the Montgomery County prosecuting attorney in Dayton, Ohio. The report, entitled Economic Impact of Wright-Patterson Air Force Base--Dayton, Ohio, used 1973 data and was released in September, 1974. The reason for the study was not divulged, but obviously there was interest in acquiring specific information about the contribution of Wright-Patterson Air Force Base to the area economy. The stated purpose of the study was "to assess the economic impact of Wright-Patterson Air Force Base (WPAFB) on the Dayton, Ohio area [11:i]." The study took a two-step approach. First, it attempted to identify the influence of the base on the Dayton SMSA (Greene, Montgomery, Miami, and Preble) in terms of employment, population, number of households, household income, retail sales, and local government income. The second part of the study gave a brief overview of the economic impact which the closing of five bases had on their host communities. This impact was expressed in terms of employment, housing, and local government income. The Hammer, Siler, George study, in

general, found that WPAFB had a significant economic impact on the SMSA. The base's influence was especially heavy in the area comprised of the thirty-eight census tracts immediately adjacent to the base. The report estimated that in 1973 the 8,741 military and 16,769 civilian personnel at the base generated an additional 49,050 jobs in the same area. The base employment and the non-export employment it generated supported 196,797 people, 19 percent of the estimated population of the four-county area. Base employment and the related non-export employment provided 20 percent of the four-county area's household income. Combined base and related non-export employment in that year injected $771,670,100 of disposable income into the area economy. The report estimated that this disposable income supported the potential for $111,833,100 in area retail sales (11:9-22).

Local tax revenues from base employee earnings amounted to $56,500 in 1973. Also, there were 7,549 public school students whose parents were employed at WPAFB, thereby bringing local schools approximately $1,500,000 in public school impact aid from the federal government (11:21).

Other economic activity generated by WPAFB in 1973 included $55,804,100 in operations and maintenance spending and $17,065,000 for new on-base construction. according to the study. Seventy percent of all operations and

maintenance expenses were estimated to be incurred in the local area (11:2).

With reference to its review of past base closures, the Hammer, Siler, George study found that the closing of a base often had had severe effects on employees and local communities. For example, there was often great detrimental effect to the number and composition of job opportunities. Housing markets were often badly hit and tax receipts were significantly reduced. In general, the study concluded that the effects of base closures could be significant and of long term duration.

In September, 1975, the Air Force Civil Engineer issued instructions to all Air Force bases which impacted signif.cantly on Air Force involvement in the collection of economic information describing base-community relationships (20). At that time bases were instructed to collect a wide variety of economic and demographic data to be included in the environmental narrative (TAB A-1) to the Air Force Comprehensive Plan. This environmental narrative is an important part of the environmental effort in that it has directed all Air Force installations to collect economic data relative to base-community relationships. The approach taken by the environmental narrative is to gather and print in the Comprehensive Plan an extensive amount of data concerning economic and demographic aspects of the base and the local community. The broad headings of

the data presented in the narrative are "History and Mission Description," "Natural Environment," and "Human Environment." Following is a list of some of the types of data collected in the Environmental Narrative:

1. Military and civilian payroll data
2. Federal aid to public schools
3. Base construction expenditures
4. BX/commissary expenditures
5. Expenditures on goods and services
6. Government revenue sources
7. Local community budgets
8. Retail and wholesale sales
9. Housing market statistics
10. Employment statistics
11. Income and financial data

(Note: See Table 6, TAB A-1 Environmental Narrative Table of Contents for a broader perspective on the wealth of data currently being maintained in TAB A-1.) The Environmental Narrative for WPAFB defines the WPAFB region of influence as Clark, Greene, and Montgomery counties. For the most part, TAB A-1 data presented for these counties has not been used as a basis for a comprehensive analysis of the economic impact of WPAFB on the local area. Discussions with personnel in the WPAFB office which is responsible for compiling TAB A-1 (2750th Civil Engineering Squadron/DEP) reveal that the compiling of data is

accomplished at the base level and then forwarded to command level for review. No analysis is performed. Although it probably represents the most comprehensive source available for WPAFB economic data, TAB A-1 is not a true economic analysis. That is, it does not attempt to make observations about the impact of WPAFB on the local economy by making inferences from the data. Whether further analysis is accomplished at HQ USAF has not been determined.

United States Air Force Captains Barr and Nardecchia conducted a 1976 study of the closing of Bellefontaine Air Force Station (AFS) near Bellefontaine, Ohio. This research was undertaken to fulfill the thesis requirements for a master's degree at the Air Force Institute of Technology (AFIT), WPAFB, Ohio. Bellefontaine AFS was closed in 1969. Barr and Nardecchia collected and analyzed data for the period 1964 to 1974 in support of a case study of that station in an attempt to determine the economic impact of closing Bellefontaine AFS on the city of Bellefontaine. From 1963 to 1969 the average number of employees assigned to Bellefontaine AFS was approximately 216. The population of the city of Bellefontaine is approximately 12,000 (4:20).

The indicators chosen by Barr and Nardecchia in trying to determine the impact of the closure were construction, employment, federal assistance to public schools, personal income, real estate, retail sales, and

utility usage. Their analysis found that ". . . the overall economic impact on the community of Bellefontaine as a result of the closure of the AFS was negligible [4:50]."

Community businessmen and residents, however, expressed the opinion that the community suffered considerably from the AFS closure. Interestingly, those who expressed this opinion actually perceived minimal economic impact in their own particular lines of business, but they perceived considerable impact in business other than their own. Barr and Nardecchia concluded that the disparity between their research findings and the beliefs of the community businessmen and residents was attributable to a basic misunderstanding by the community of the actual contributions of the Bellefontaine AFS to Bellefontaine's economy (4:50).

In 1969 the Department of the Air Force released a study by John E. Lynch which investigated the economic recovery of communities hit by the closure of nearby military installations. Lynch tested the hypothesis that

> . . . the phase-down of any military installation has a direct effect on service [non-export] employment in the surrounding local community immediately related to the employment loss at the installation itself [12:6].

Lynch's work disclosed that the employment multipliers[5] for DOD civilian personnel assigned to operational

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[5]The employment multiplier is discussed in detail in Chapter II. Basically, it is a ratio which indicates how

bases were significant and meaningful. He found that a reduction of 100 civilian employees could be expected to lead to the loss of 258 jobs in the non-export sector of a local community in six months. Similarly, the loss of 100 military personnel from any operational base (as opposed to a training base) would result in the loss of sixty-six jobs in the non-export sector (12:9). Lynch points out that, as a general rule, the loss of non-export sector employment in a community may be cushioned to the extent that non-export sector jobs are held by military personnel and their dependents. When a base is closed and these personnel are reassigned, the non-export sector jobs lost need not be replaced in order to maintain the community's economic stability.

Lynch, as did Buckley, commented on the lack of knowledge within the DOD concerning the true economic relationship of existing military installations to nearby communities. In addition to his use of employment multipliers to describe these relationships, Lynch investigated the use of retail sales, housing, and federal impact assistance data. Retail sales information was found to be of questionable benefit. "In no other single area is it more difficult to discern the impact of installation closures

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many local non-export jobs are dependent on each export job in a given industry (such as the Defense industry) in the area.

than on local retail sales [12:13]," says Lynch. This was found to be true both at installations staffed predominantly with military personnel and at installations with sizable civilian employment. He concluded that, in general, local retail sales will be little affected by the closure of nearby military installations. Findings of this thesis lend partial support to these views. In contrast, a joint study, by the Rand Corporation of Santa Monica, California, and the University of Washington, of the Seattle area during its 1970 to 1971 recession showed that retail sales were impacted by the slump in the Seattle aircraft industry. However, retail sales were kept from falling by the spending of workers' savings (16:3).

The effect of military base closures on the local housing market was clearly discernible according to Lynch. However, he found no widely applicable indicators (analagous to employment multipliers) for the impact of local housing. Although employment and housing are probably the most sensitive local indicators of the impact of base closures, it is necessary to accomplish a local appraisal in order to isolate the effect on the community housing market.

Research Objective

The objective of this research is to provide the Department of Defense with knowledge of the relative strength of the Dayton SMSA economy. This information

could be used by DOD to make estimates about the impact on the Dayton SMSA which might result from mission changes in local defense installations, were such changes to take place. In a broader context, the approach used in this research could serve as a guide for obtaining the type of economic information needed by DOD concerning local areas in which defense installations are located. Information gathered using this approach could assist in the preparation of economic impact statements that are required for local areas in which installations are located--installations in which mission changes could someday take place.

Research Question

The fundamental question which will guide the research toward its objective is the following: What was the response of the Dayton SMSA economy to the employment cuts which occurred during the period of the study?

Scope

The geographic area which this research encompasses is the Dayton SMSA which is composed of the four counties of Green, Montgomery, Miami, and Preble. The economic impacts of the recessions in 1969-1970 and 1974-1975 were of primary interest in this study. Therefore, the total time interval chosen to include these two recessions was the period 1968-1975.

Assumption

In this research much of the analysis of the Dayton area economy is based on its response to heavy job losses in local manufacturing industries during the years 1970 through 1975. This study assumes that the Dayton area economy would react similarly to job losses in the area's defense industry. Therefore, any conclusions drawn about the health of the Dayton SMSA economy as a result of its performance during the period of manufacturing job cuts are assumed to be valid also for potential defense job cuts.

CHAPTER II

METHODOLOGY

Introduction

An essential ingredient in achieving the research objective was a description of the Dayton SMSA economy. Such a description entailed describing the industrial makeup of the SMSA, as well as evaluating its growth potential. A review of the literature on economic analysis methods suggested that, perhaps, the economic base study technique (discussed in this chapter) was the most appropriate method for this research effort. The reasons for its choice were: (1) the simplicity of this technique, (2) the corresponding ease with which the technique could be applied, (3) the limited scope of this research effort, and (4) the time, manpower, and budget constraints within which this research effort had to be accomplished.

The literature reveals that this technique is not the most widely accepted for depicting urban growth patterns. There are economists who reject it for a number of reasons, the most basic of which is the contention that economic base theory is an "inadequate explanation of urban development [15:2]." They argue that "the flow of goods and services within a community are too important to be ignored,

as they are in the economic base theory, in any sizeable community [15:2]."

At the same time, however, there are many proponents of the technique who consider it to be a viable, useful tool which adequately explains the economic structure of a community. These individuals believe that to be able to evaluate a given economy, one has to identify that sector which provides the "economic growth potential" within the community and, further, one has to evaluate that sector's strengths and weaknesses. They judge that the economic base study meets this requirement.

There are certain assumptions made in the economic base study technique which bear mentioning. These are:

1. The economic base can be measured by the macrocosmic method, which, in essence, makes a comparison of area employment to employment in the nation at large. The comparison allows a determination to be made of the magnitude of local employment to the national norm (2:86).

2. There is uniform demand for goods and services across the nation. This negates the possibility that tastes for goods and services may vary, e.g., beer is popular in Illinois and steak is eaten in huge quantities in Texas (21:48).

3. Productivity is constant across the nation. Thus, a community which is more productive than the national norm would really have more export employment than is measured by the economic base study (21:48).

The Economic Base Study

An economic base study incorporates the idea of partitioning the economy. Essentially, the method provides for the division of the economy, i.e., the aggregation of industries into two market sectors: export and non-export. The export sector, also called the basic sector, is the more important of the two sectors. It contains the occupations which support the local economy. The non-export sector, also called the non-basic, service, or local sector, is of secondary importance. It contains occupations which support the export sector. This dichotomy forms the heart of economic base theory.

> Implicit in this division of markets is the cause and effect relationship. Export markets are considered the prime mover of the local economy. If employment serving this market rises or falls, employment serving the local market is presumed to move in the same direction. . . . A base study thus permits the computation of a sort of "multiplier," viz. the ratio between the amount of employment in export industries and the amount in local service industries, so that an increase in the former will bring about an increase in the latter in proportion to the multiplier ratio [24:31].

Economic base theory holds that economic growth is directly related to the export activities of the community. These activities are producers of

> . . . export goods and services to points outside the economic confines of the community or which market their goods and services to persons who come from outside the communities' economic boundaries. From a trade-flow viewpoint these base enterprises, through their export function, earn a dollar inflow for the community from the surrounding region, the nation at large, and even from other nations. . . . The base

> [export] activities can be considered the wage earners of the community family. Without them, or if they decline in earning power [and are not replaced], the economic health of the community suffers accordingly [1:6].

A community with a strong export sector is able to provide the external world with goods and services. In such a case, the export sector is an important factor contributing to the community's economic well-being. A good example is provided by Japan, which has a large volume of exports. Japan's exports are its life blood. Its gross national product (GNP) is heavily geared to export markets served by its industries. Its ability to earn a cash inflow through export goods and to use this cash inflow to obtain its sorely needed critical commodities (fuels, hard metals, etc.) keeps Japan, a small island community, ranked high as a modern, prosperous nation with a high standard of living.

On the other hand, critics of economic base theory would cite the example of the United States, which does not have its GNP driven by export trade. The growth of the U.S. economy is based largely on production of domestic goods and services and from natural growth of the population. Foreign trade comprises a relatively small part of the total production and consumption of commodities. Thus, in the U.S., national growth is generated internally and is not particularly susceptible to world market shifts (24:15).

Non-export activities include enterprises which principally provide goods and services to export firms and to persons employed in the community's export activities. Thus, non-export activities provide for the needs of the export sector and, in turn, are supported by it (1:7).

> The dependency of service [non-export] activity upon base export activity is evident in the fact that employment and profitability in service activities is highly sensitive to changes in the base, rising and falling with it. As with nations, one economic objective of the community seems to be either to keep its trade in balance or to obtain a favorable export balance. If a community's trade balance becomes negative . . . or if the exporting functions decline in activity, reallocations of the local economy as between base and service employment ratios are sure to take place and an eventual downward adjustment in total community population is almost certain to result [1:7].

These, then, are the basic tenets of economic base theory. It is considered by some to be not only simple and straightforward, but also a rather obvious concept.

Many applications of the technique abound. One was the study entitled: Regional Survey of New York and Its Environs (1:7). This 1928 study provided one of the earliest explanations of the concept. Later, in 1936, the economist Homer Hoyt, working as a consultant to the Federal Housing Administration, developed the concept further and provided "the essential outlines of the economic base idea as we know it today [1:9]." The method described is essentially a four-stage technique as follows:

(1) Calculation of total basic employment in the community and, particularly the amount of basic employment in each basic activity. . . .
(2) Estimation of the proportion of basic employment to service employment.
(3) Estimation of the future trend in each segment of the base as indicated by analysis of the demand for its product or service locational factors, productive efficiency, etc.
(4) Calculation of total (future) employment and total future population on the basis of future trends in basic employment [1:10].

The objective of partitioning the economy into two sectors is to depict the relative importance of each industry in the community as a primary source of income and employment to the community. From a broad view, these industries are generally classified as (1) manufacturing, (2) extractive, (3) wholesale and retail, (4) finance and banking, and (5) service industries.[6]

Various methods of partitioning are available. A preferred method uses surveys of local employers to determine their sales market, thus providing a determination of these employers' "export" versus "non-export" potential. By adding up the export sectors and the non-export sectors for all employers, one is able to determine the size of the export and non-export sectors for the entire

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[6]In order to facilitate the collection and presentation of statistical data on the large number of industries, the federal government developed a four-digit standard industrial classification (SIC) scheme. In this scheme, broad industrial groups, such as manufacturing and non-manufacturing, are identified by one digit. These are further subdivided into lower subgroups of two, three, and finally, four digits. The most useful level of aggregation for study purposes depends on the nature of the local economy.

area. However, this is an expensive and time-consuming method. Consequently, it was not employed in this study. Rather, a simpler, faster, less expensive alternative was employed. This alternative method, also used in economic base studies, is the location quotient approach which will be described shortly.

Regardless of the sectoring technique employed, the main point of interest is that an attempt is being made to find the basic economic supports of the community. That is, sectoring results in the identification of the urban growth sources of income and employment and their relative importance to the community. These sources play the predominant role in shaping the community's economic future.

After the export and non-export sectors have been determined, the multiplier can then be calculated. The multiplier gives an indication of the relative importance of the export sector, both for industries as an aggregate and individually.

The multiplier can be developed for any of several measurement units desired. These units may be employment, sales, income, value-added, to name those most commonly used. This thesis used employment as the measurement unit.

The location quotient (LQ) partitions each industry into either of two sectors, export or non-export (6:15). The location quotient is:

$$LQ = (ei/e) / (E_i/E)$$

where: e_i = number of employees in industry i in the community,

e = total employment in the community,

E_i = number of employees in industry i in the bench mark area (U.S.), and

E = total employment in the bench mark area (U.S.).

For example, if the community employed 50,000 in industry i from a total employment of 300,000, and the nation had 500,000 employed in industry i from a total employment of 60,000,000, then LQ = (50,000/300,000)/(500,000/60,000,000) = 20. This means that employment is concentrated 20 times as heavily in industry i in the community as it is in industry i in the nation. Consequently, the community is producing more of the product of industry i than it needs to sustain itself. The excess is being produced for export. Export and local employment in industry i are then found as follows:

$$\text{Non-Export Employment} = \frac{e_i}{LQ + 1} = \frac{50,000}{20+1} = 2381$$

$$\text{Export Employment} = e_i - \text{Local Employment};$$
$$= 50,000 - 2381$$
$$= 47,619$$

These computations are carried out for each industry in the community. Then the sum of non-export employment

for all industries is obtained, as well as the sum of export employment in these industries (13:47). Finally, the employment multiplier for the area is calculated as follows (3:141-150);

$$\text{Employment Multiplier} = \frac{\Sigma \text{ Export Employment}}{\Sigma \text{ Local Employment}}$$

The relative importance of the area as an exporter of goods is provided by the magnitude of the employment multiplier computed from the aggregation of all industries. Individual industries are viewed in the same manner. Over a relatively short time, three to eight years, multipliers are expected to remain fairly constant. Unusually large changes provide an indication of the changing industrial profile and, thus, the area's economic strength and stability. Comparison of multipliers from the beginning and end of the study period for this thesis were used to make this evaluation.

Analysis of firms in the export industries can assist the evaluation of the economic base study. Factors such as nature of products, demand patterns, availability of raw materials, competitive position, age of plant and equipment, character of labor supply, and management competence can be examined in such an effort. However, this type of analysis was beyond the scope of this study.

Therefore, an alternative analysis method, migration analysis, was used. A discussion of this method follows.

Migration Analysis

In Chapter III the rise in non-manufacturing employment and the fall in manufacturing employment in the Dayton SMSA are discussed. The raw employment data itself provide little insight into the migration of workers into and out of the Dayton SMSA. As is pointed out in Chapter III, the Dayton SMSA unemployment rate was relatively stable throughout the period of this study. Additional information about the migration patterns of workers may provide some explanation of this stability. Therefore, an effort to determine the extent of this migration was undertaken. A migration analysis of the 1970 work force was conducted. This analysis consisted of aging the work force and then comparing the "aged" and actual 1975 work forces. Any difference in the two could be attributed to a net migration component.

The technique used to analyze migration was based on employment data obtained from the 1970 Census of Population (22:37-1538 to 37-1539). Taking the year 1970 as a starting point, the 1970 work force was "aged" to determine its expected size in 1975. This aging process involved the following steps:

1. From mortality tables, mortality rates were applied to the 1970 work force to determine how many people in the 1970 work force could be expected to die by 1975. This number was subtracted from the 1970 work force.

2. The assumption was made that workers would retire at the age of sixty-five. The Census of Population data identified the number of workers who were sixty to sixty-four years old in 1970. In general, the sixty-one to sixty-four year olds in this group would have retired by 1975. The number of sixty-one to sixty-four year olds was, therefore, subtracted from the number of 1970 workers.

3. Another consideration in the aging process was the number of teenaged people becoming employed for the first time. It was assumed that they first began entering the work force at sixteen years of age. Obviously, not all members of the sixteen year old age group in any given year would enter the work force in that year. Therefore, the assumption was made that young workers gradually entered the work force from sixteen to twenty-five years of age. It was also assumed that by the time the period during which young people were entering the work force had elapsed, only 50 percent of the original sixteen year old group would have entered manufacturing and non-manufacturing employment in the area. Thus, 5 percent of the sixteen year old age group was added to the labor force each successive year from 1970 to 1975.

Based on these assumptions, the necessary calculations to determine how many "newcomers" should have entered the work force by 1975 were made. Calculations were also made to determine the number of deaths in this group. The expected 1975 work force was lowered by that number of deaths.

In summary, the aging process consisted of establishing the expected number of people in the Dayton SMSA work force in 1975 and then making the following adjustments to that number:

1. Subtraction of the number of workers expected to die by 1975

2. Subtraction of the number of workers expected to retire by 1975

3. Addition of the number of young workers expected to enter the work force by 1975

In short,

EXPECTED 1975 WORK FORCE = ACTUAL 1970 WORK FORCE - DEATHS - RETIREES + NEW WORKERS

After these components (deaths, retirees, and new workers) were taken into account, only one other component remained to explain the difference which existed between the actual 1975 work force and the "aged" 1975 work force. This other component was the number of workers who migrated

into or migrated from the area during the 1970-1975 period. This was the additional information about the migration of workers which was needed to help explain the stability of the SMSA's economy. The results of the migration analysis are reported in Chapter III.

Cross-Sectional Analysis

A wide range of economic measures can be evaluated to assist the interpretation of the economic base study. The use of these measures is not intended to show or develop cause and effect relationships, e.g., as between retail sales and employment. Rather, they are used to provide insights into the processes of change over time in the locality being studied. For instance,

> . . . telephone calls may be a function of population and median income; electricity usage may be a function of industrial employment and households; property tax receipts may be a function of total personal income and new construction [24:13].

In summary, economic measures are used as additional means of judging local economic trends. The particular economic measures used in this study were as follows:

1. Population
2. Retail sales
3. Banking activity
4. New residential and non-residential building permits
5. Housing stock--depicts residential sales

6. School enrollment

7. Local government finances--revenues and expenditures

Data Collection

The task of collecting the data required for this research was approached on the basis that study and analysis were to be performed only on data readily available from local sources. Much data, for example, was acquired from government reports and documents on file in the libraries of the Air Force Institute of Technology (AFIT), Wright State University and The University of Dayton, all of which are located in the Dayton SMSA. Other local sources used included the Ohio Bureau of Employment Services and the Dayton Area Chamber of Commerce.

Summary

The methodology for this thesis consisted of an economic base study using location quotients as the means of partitioning the industrial classifications into export and non-export serving markets. The unit of measure was employment. Further analytical methods were used to aid the evaluation and interpretation of economic base study results. These methods were a migration analysis which used a labor force aging technique, and a cross-sectional analysis of a selection of economic measures. The period of the study was chosen so as to encompass the

recessionary periods, 1969-1970 and 1974-1975. The changing economic conditions during the period were evaluated to determine the strength and stability of the Dayton SMSA's economy.

CHAPTER III

ANALYSIS

Employment patterns for the Dayton SMSA for the time interval 1968 to 1975 showed significant changes (see Table 3.1 and Figure 1). There was a net loss in total employment over the period as it fell from a peak of 33,500 in 1970 to 326,200 in 1975. During the 1971 recession employment fell to 318,400. By 1974, however, the economy had demonstrated its resiliency since the falling employment trend had reversed and had even surpassed the previous 1970 employment peak by reaching 337,600. A second recession took place from 1974 to 1975. Total employment dropped to 326,000 in 1975 and then to 323,300 in 1976. This loss was not as great as the 1970-1971 loss, but Dayton SMSA employment was slower to recover from this second recession. By late 1976, total employment was showing a slow upward movement and had risen to 332,900 by January, 1977. Here again, local conditions are seen to be related to the national economy in that the unemployment rate fluctuations during the 1968-1975 period appear to have followed the national trend (see Table 1.3 and Figure 2). In fact, the Dayton SMSA unemployment rate stayed lower than the U.S. and Ohio rates throughout the entire

TABLE 3.1

AVERAGE NON-AGRICULTURAL WAGE AND SALARY EMPLOYMENT OF PRIMARY INDUSTRIES IN DAYTON SMSA (000)

Industry	Year							
	1968	1969	1970	1971	1972	1973	1974	1975
Manufacturing	128.7	133.3	126.2	110.9	112.9	117.0	113.0	102.4
Durable Goods	90.6	93.9	90.5	76.4	80.3	82.7	79.8	71.9
Stone, Clay, etc.	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4
Machinery, except Elec.	37.6	37.5	37.6	28.6	28.4	44.6	42.8	37.9
Elec. & Electronic Equipment	28.7	30.9	29.1	25.2	23.8	5.5	5.9	5.2
Transp. Equipment	9.0	9.8	8.7	9.4	9.7	16.3	15.3	13.2
Miscellaneous	13.0	13.2	12.8	10.9	16.1	14.0	13.5	28.2
Non-durable Goods	38.1	39.4	35.7	34.5	32.6	34.3	32.8	30.8
Food & Kindred Products	5.2	5.1	4.7	4.8	3.4	3.7	3.7	3.7
Paper & Allied Products	6.0	6.1	5.9	5.9	5.7	6.1	6.3	5.6
Printing & Publishing	11.7	12.5	11.7	10.2	9.9	10.0	9.7	8.7
Rubber & Misc. Products	12.0	12.4	9.9	9.7	10.1	10.2	9.8	9.6
Miscellaneous	3.2	3.3	3.5	3.9	3.5	4.3	3.3	2.9
Non-manufacturing	188.3	198.3	207.3	207.6	206.4	214.9	224.6	223.8
Mining	.5	.5	.5	.5	.5	.5	.5	.5
Construction	11.9	12.6	13.4	11.4	11.0	13.0	13.0	11.8
Transportation & Public Utilities	12.2	12.5	12.8	12.8	12.4	12.6	12.9	12.4
Communications, Gas, and Electric Services	6.0	6.3	6.6	6.6	6.4	6.3	6.3	6.3
Wholesale and Retail	55.6	58.6	61.6	62.4	60.9	64.1	66.7	67.1
Wholesale Trade	10.4	10.8	11.8	12.0	11.1	11.9	12.3	12.8
Retail Trade	45.2	46.6	49.8	50.4	49.8	52.2	54.4	54.3

TABLE 3.1--Continued

Industry	Year							
	1968	1969	1970	1971	1972	1973	1974	1975
Non-manufacturing (cont)								
Finance, Insurance & Real Estate	8.6	9.3	10.0	10.4	10.3	10.9	11.5	11.8
Service & Misc. Industries	42.1	42.6	50.0	50.7	53.0	54.2	57.9	56.9
Government	57.4	59.1	59.0	59.4	58.4	59.6	62.1	62.3
Federal	29.0	29.0	28.3	27.4	26.1	25.9	25.7	25.9
DOD	-	22.9	21.3	21.4	20.5	20.3	19.9	-
Non-DOD	-	6.1	7.0	6.0	5.6	5.6	5.8	-
State	3.0	3.2	4.6	4.1	4.4	4.5	4.8	4.9
Local	25.4	26.9	27.1	28.0	27.9	29.3	31.6	32.5
TOTALS	317.1	331.5	333.5	318.4	319.3	331.9	337.6	326.2

Source: Ohio Bureau of Employment Services. Ohio Labor Market Information: Employment, Hours, and Earnings in Ohio, 1968-75. Columbus: Ohio Bureau of Employment Services.

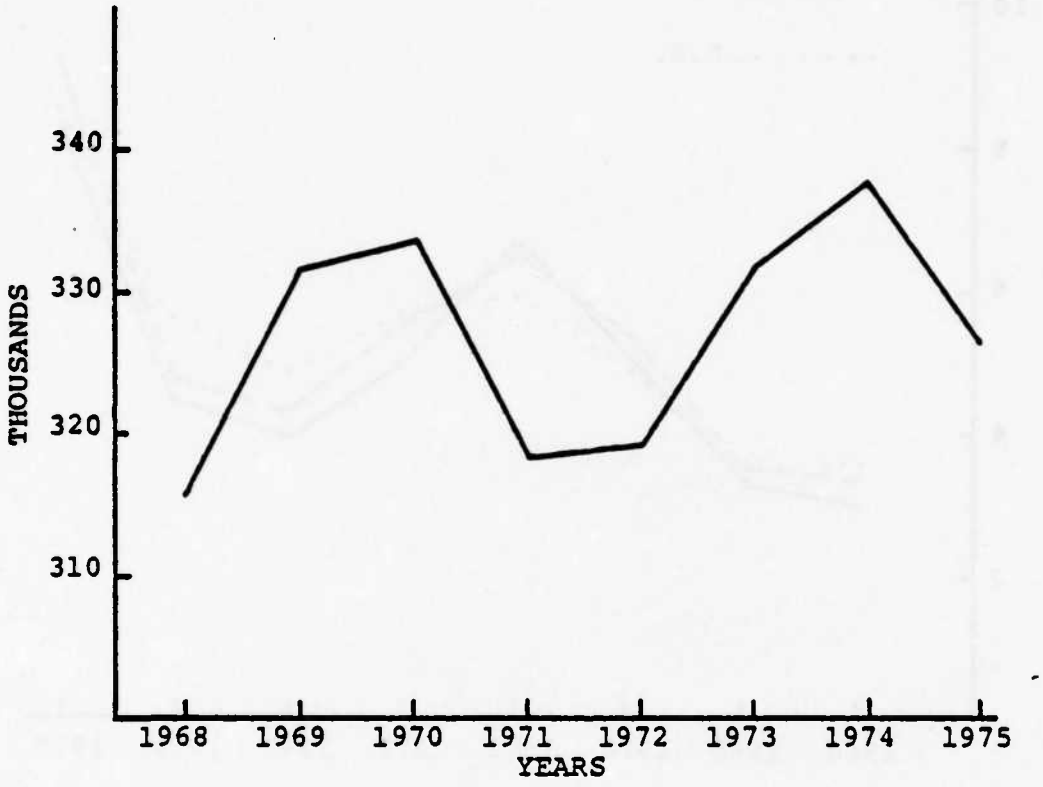

Fig. 1. Total Employment--Dayton SMSA

Source: Ohio Bureau of Employment Services. Ohio Labor Market Information: Employment, Hours, and Earnings in Ohio, 1968-1975 (Columbus: Ohio Bureau of Employment Services).

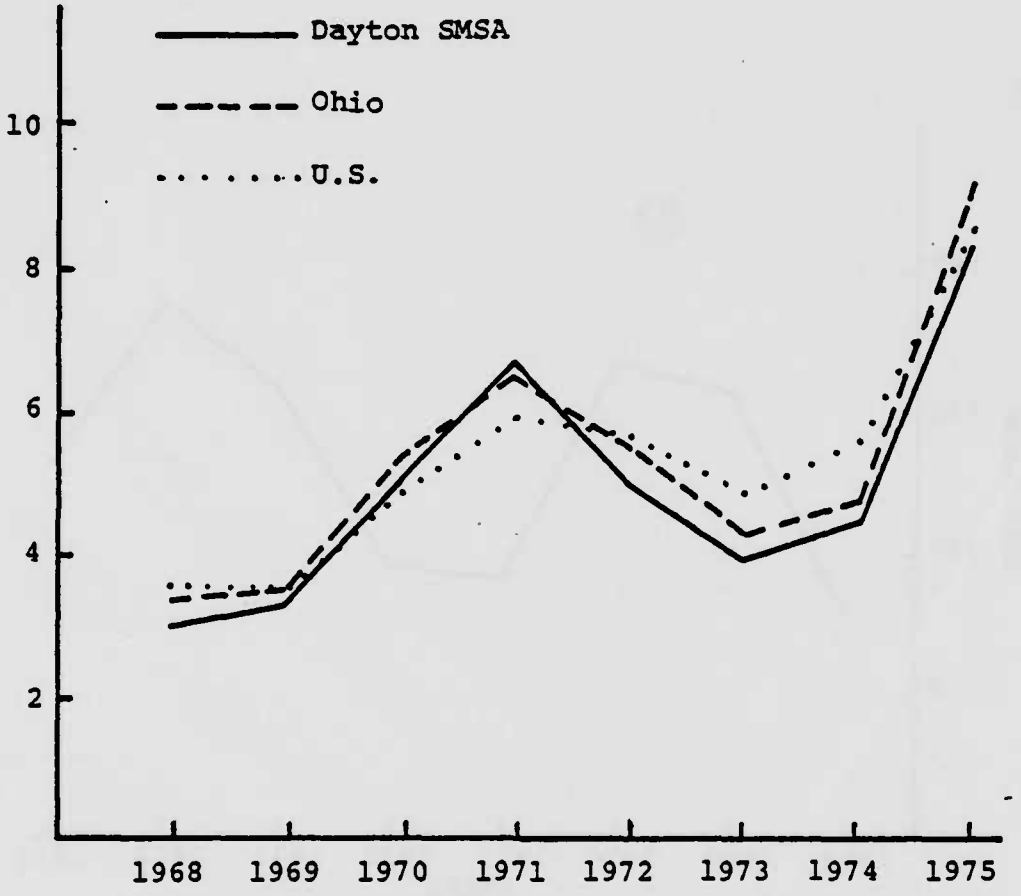

Fig. 2. Unemployment Rates

Source: Ohio Bureau of Employment Services. Ohio Labor Market Information: Employment, Hours, and Earnings in Ohio, January 1977 (Columbus, Ohio Bureau of Employment Services).

period, except for 1971 when unemployment in the SMSA rose to 6.7 percent.

Perhaps the diversity of employment in the Dayton SMSA explains this relative stability. A comparison was made of the Dayton SMSA with two other heavily industrialized SMSAs to investigate this diversity. These two areas had also experienced heavy employment rollbacks in their primary industries. The Seattle-Everett SMSA suffered heavy employment losses in its aircraft industry between 1969 and 1971, with the unemployment rate reaching 15 percent in mid-1971. The Detroit SMSA had significant losses because of the auto industry slump in 1974-1975. The electronic equipment industry layoffs which Dayton SMSA suffered occurred largely because of heavy cuts at NCR Corporation.

Each of the primary industries in these three cities is classified industrially in the durable goods segment of the manufacturing industry. An examination of the industries experiencing large employment losses in each of the three cities shows that, in each case, the primary industry accounted for the largest proportion of durable goods employment in the city. These proportions were as follows: Dayton SMSA--39.39 percent, Detroit SMSA--52.68 percent, and Seattle-Everett SMSA--48.45 percent. The heavier concentrations of employment in the primary industries in Seattle and Detroit made their durable goods

employment distribution less diverse than that of Dayton. This relative diversity of Dayton SMSA employment could be a reason for the stability of the Dayton SMSA unemployment rate.

There were significant employment shifts from the manufacturing to the non-manufacturing industrial divisions in the Dayton SMSA during the study period, 1968 to 1975 (see Table 3.2). Although there were periodic declines and increases in manufacturing employment, the overall trend was one of steady and persistent decrease. Manufacturing employment fell from a high of 133,300 in 1969 to a low of 102,400 in 1975, a net loss of 30,900. In contrast to this decrease in manufacturing was the steady and persistent increase in non-manufacturing employment, which, like manufacturing, also exhibited fluctuations. Non-manufacturing employment rose from 188,300 in 1968 to 223,800 in 1975, a gain of 27,300. Taken together, the two categories of employment combined to produce little net change in total employment.

In 1969, non-manufacturing comprised 59.8 percent of total employment and increased to 68.6 percent by 1975. This significant shift in the composition of total employment is well illustrated with the use of ratios comparing non-manufacturing to manufacturing employment. In 1969 the ratio was 1.48:1. In 1975 it was 2.19:1.

TABLE 3.2

DAYTON SMSA EMPLOYMENT CHANGES (000)

Industry	1969	Percent of Total	1971	Percent of Total	1975	Percent of Total
Total Employment	331.5	100.0	318.4	100.0	362.2	100.0
Manufacturing	133.3	40.2	110.9	34.8	102.4	31.4
Durable Goods	93.9	28.3	76.4	24.0	71.9	22.0
Machinery, except Electrical	37.5	11.3	28.6	9.0	37.9	11.6
Electrical and Electronic Equip.	30.9	9.3	25.2	7.9	5.2	1.6
Transportation Equipment	9.8	3.0	9.4	3.0	13.2	4.0
Non-durable Goods	38.1	11.5	34.5	10.8	30.5	9.4
Paper and Allied Products	6.1	1.8	5.9	1.9	5.6	1.7
Printing and Publishing	12.5	3.8	10.2	3.2	8.7	2.7
Rubber and Miscellaneous	12.4	3.7	9.7	3.0	9.6	2.9
Non-Manufacturing	198.3	59.8	207.6	65.2	223.8	68.6
Federal Government	29.0	8.7	27.4	8.6	25.9	7.9
DOD	22.9	6.9	21.4	6.7	NA	-
Non-DoD	6.1	1.8	6.0	1.9	NA	-

NOTE: Computed using Table 3.1 data.

Source: Ohio Bureau of Employment Services. Ohio Labor Management Information: Employment, Hours, and Earnings in Ohio, 1968-75. Columbus: Ohio Bureau of Employment Services.

Closer examination of the area employment profile showed significant changes or shifts among the various industrial classifications within the broader manufacturing and non-manufacturing categories, as shown in Table 3.1. The data from Table 3.1 was used also as the basis for the economic base study in this thesis. The reader will recall that the economic base study partitioned the economy into industries serving export and non-export sectors. Further discussions about employment shifts will be presented along these subdivisions.

Export Sector Employment

Between the years 1969 and 1975 there was a shift within manufacturing employment. Durable goods employment dropped by 22,000; non-durable goods employment dropped by only 8,900. The heaviest durable goods loss occurred in the Electric and Electronic Equipment category (25,700). This category reflects the industrial output of NCR Corporation, Chrysler Airtemp, and General Motors Corporation, three Dayton SMSA industries which laid off many workers during the 1969-1975 period.

In non-durable goods employment the largest losses occurred in Printing and Publishing (3,800), followed by Rubber and Miscellaneous Plastic Products (2,800) and Paper and Allied Products (500). The ratio of durable goods to

non-durable goods employment dropped from 2.38:1 to 2.36:1 between 1969 and 1975, a rather small change.

The only other category contributing to export sector employment, Federal Government, which is a non-manufacturing category, suffered a net loss of 3,100 employees between 1968 and 1975. Department of Defense (DOD) employment, which comprises the bulk of federal employment (78 percent) suffered the majority of the losses, including 2,944 civilian employees (23:8).

Non-Export Sector Employment

Industries in the non-export sector also underwent changes during the period being discussed. All the non-manufacturing categories of employment fall in this group, with Federal Government as the sole exception. Employment for these industries as a group showed a net increase from 1971 to 1975, rising from 59.38 percent of total employment in 1968 to 65.20 percent in 1971 and finally to 68.61 percent in 1975 (computed from Table 3.1). Table 3.3 shows the most significant changes in the non-manufacturing industries.

Changes in the number of firms within these non-export industries reflect the general increased activity in this sector over the period. Table 3.4 lists the number of firms within the general categories of Retail Trade;

TABLE 3.3

CHANGES IN INDUSTRIES NOT CONTRIBUTING TO EXPORT EMPLOYMENT

Non-Manufacturing Industries	Percent of Total Employment 1968	1971	1975
Wholesale/Retail Trade	17.53	19.60	20.57
Wholesale	3.28	3.77	3.92
Retail	14.25	15.83	16.65
Services and Miscellaneous	13.28	15.92	17.44
Finance, Insurance and Real Estate	2.71	3.27	3.62
State Government	.95	1.29	1.50
Local Government	8.01	8.79	9.96

NOTE: Computed from Table 3.1 data.

Source: Ohio Bureau of Employment Services. Ohio Labor Market Information: Employment, Hours, and Earnings in Ohio, 1968-75. Columbus: Ohio Bureau of Employment Services.

TABLE 3.4

DAYTON SMSA NON-MANUFACTURING FIRMS

SIC	Industry	1970	1974	Change	(% Incr.)
Retail Trade					
52	Building Materials and Farm Equipment	178	202	24	(13.5)
53	General Merchandise	158	116	-42	(-26.6)
54	Food Stores	428	519	91	(21.3)*
55	Auto Dealers and Service Stations	852	947	95	(11.2)*
56	Apparel and Accessory Stores	218	308	90	(41.3)
57	Furniture and Home Furnishings	225	235	10	(4.4)
58	Eating and Drinking	913	1126	213	(23.3)*
59	Miscellaneous Retail	529	773	244	(46.1)*
--	Administrative and Auxiliary	13	37	24	(184.6)
TOTALS		3514	4263	749	(21.31)
Finance, Insurance, and Real Estate					
60	Banking	29	108	79	(272.0)
61	Credit Agencies Other Than Banks	168	221	53	(31.5)
62	Security, Commodity Brokers, and Services	17	19	2	(11.8)
63	Insurance Carriers	129	85	-44	(-34.0)
64	Insurance Agents, Brokers and Services	232	348	116	(50.0)*
65	Real Estate	436	450	14	(3.2)
66	Combined Real Estate, Ins., etc.	13	0	-13	(-100.0)
67	Holding and Other Investment Co.	23	27	4	(17.4)
TOTALS		1047	1258	211	(20.15

*The most significant changes, as measured by the total number of firms and the increase in these firms.

TABLE 3.4--Continued

SIC	Industry	1970	1974	Change	(% Incr.)
Services					
70	Hotels and Other Lodging	91	123	32	(35.2)
72	Personal Services	655	608	-47	(-7.2)
73	Miscellaneous Business Services	372	406	34	(9.1)
75	Auto Repair Services and Garages	269	292	23	(8.6)
76	Miscellaneous Repair Services	146	146	0	0
77	Motion Pictures	37	38	1	(2.7)
79	Amusement and Recreation Service	179	178	-1	(- .6)
80	Medical and Other Health Services	905	940	35	(3.9)
81	Legal Services	214	226	12	(5.6)
82	Educational Services	142	84	-58	(-40.8)
83	Social Services	0	117	117	-
84	Museums, Botanical, Zool. Gardens	4	3	-1	(-25.0)
86	Non-profit Membership Organizations	440	464	24	(5.4)
89	Miscellaneous Services	259	211	-48	(-18.5)
--	Administrative and Auxiliary	10	69	59	(59.0)
	TOTALS	3723	3905	182	
	GRAND TOTAL	8284	9426	1142	
Unclassified Establishments		104			

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns 1970 and 1974, Report Nos. CBP-70-37 and CBP-74-37, Table 2. Washington, D.C.: Government Printing Office.

Finance, Insurance, and Real Estate; and Services for the years 1970 and 1974.

In 1970, the Services category contained the most firms--3,723--followed closely by Retail Trade with 3,514. By 1974, Retail Trade had taken over the lead in number of firms with 4,263, followed by Services with 3,905. For all three categories, the number of firms jumped from 8,284 to 9,426, a 13.8 percent increase.

Economic Base Study

As previously stated, an economic base study depicts an area's economic strength by identifying the relative levels of export and non-export employment in the area. In so doing, it identifies those industries which serve export markets and which, therefore, serve as the sources of employment and income to the area from the external world--thus, the area's economic strength. This kind of information is provided by the employment multiplier, which is the ratio of local to export employment. The previous discussion on employment brought out the changing total employment patterns in the area, as well as the shifts in employment between industries. Now the impact of those changes on the multiplier will be discussed.

As mentioned previously, the sectoring technique revealed that the export sector of the area consisted of all manufacturing (durable goods and non-durable goods)

industries plus only one of the non-manufacturing industries--Federal Government. Table 3.5 contains a list of these ratios for the export industries from 1968 to 1975. During this period, the shift in employment from manufacturing to non-manufacturing resulted in a weakening of the export sector and an increased dependency on non-export employment. In 1968, the employment multiplier for all industries combined was 2.56, which meant that each job in the export sector generated employment in the non-export sector for 2.56 employees. By 1975, this ratio had changed to 3.51. The significance of the change in the ratio was that, in relation to the nation, the Dayton SMSA had a smaller percentage of its employment concentrated in the export sector in 1975 than it did in 1968. Contributing factors to this change were layoffs at the NCR Corporation and other large manufacturing firms. Also, during this period, new non-manufacturing firms were attracted to the area. Table 3.4 illustrates this fact. Some examples of new firms in the area were Metropolitan Life Insurance Company, General Motors Acceptance Corporation and Stouffer Hotels (18:9D). Another factor contributing to increases in the non-export sector was the increased number of jobs in local and state government during the period (18:9D). One other possible explanation was that, since non-export sector employment was not totally used up, there was room for expansion to fulfill local needs. (This will

TABLE 3.5

DAYTON SMSA EMPLOYMENT MULTIPLIERS

Industry	Year							
	1968	1969	1970	1971	1972	1973	1974	1975
Total Employment	2.56	2.62	2.86	3.60	3.24	3.13	3.13	3.51
Manufacturing	2.40	2.39	2.52	2.90	2.57	2.69	3.08	3.02
Durable Goods	1.44	1.45	1.37	1.61	1.41	1.56	1.74	1.67
Machinery except Electrical	.31	.34	.32	.39	.40	.25	.29	.30
Electric and Electronic Equip.	.46	.44	.44	.46	.49	∞	∞	∞
Transportation Equipment	3.29	2.27	2.00	1.04	.94	.42	.44	.52
Non-durable Goods								
Paper and Allied Products	1.14	1.18	1.27	1.03	1.04	.97	.85	.93
Printing and Publishing	.72	.69	.80	.89	.57	.89	.94	1.07
Rubber and Misc. Products	.26	.29	.38	.35	.36	.40	.42	.35
Non-Manufacturing								
Federal Government	.49	.49	.51	.48	.49	.48	.51	.51
DOD	-	.36	.30	.30	.28	.29	2.62	-
Non-DOD	-	1.35	1.26	1.86	2.29	2.50	2.62	-

NOTE: Computed from Table 3.1.

Sources: Ohio Bureau of Employment Services. Ohio Labor Market Information: Employment, Hours, and Earnings in Ohio, 1968-75. Columbus: Ohio Bureau of Employment Services.

U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Current Business (July 1972, July 1974, July 1976), Table 6.3. Washington, D.C.: Government Printing Office.

be discussed at greater length later in the migration analysis). Also, since the retail industry uses relatively unskilled labor, this industry is the one most likely to show increased employment activity.

A discussion of those industries which had the most prominent changes in their multipliers (see Table 3.5) is appropriate at this point. Those industries are as follows:

1. Electric and Electronic Equipment: This industry's multiplier was .46 in 1969. That is, two export sector jobs generated approximately one non-export sector job in 1969. By 1975 all employment in the category was non-export.

2. Machinery, Except Electrical: There was no significant overall change in the multiplier for this category in the period 1969-1975. However, there were large employment decreases in this category during the 1971-1972 period with a resulting increase in the employment multiplier. But the regaining of this employment by 1975 caused the multiplier to drop back near the 1969 level. This category accounted for the largest share of total employment (37,000 or 11.6 percent) for the area in 1975. Thus, the demonstrated ability of this particular industry to regain lost employment is a significant factor in explaining the stability of the area's unemployment rate.

3. Transportation Equipment: This industry's multiplier dropped from 3.29 to .5 during the years 1969-1975. This drop was caused by an increase in export sector employment in this category. The decrease in this multiplier--meaning that it was gaining employment, but in the export sector only--is coincidental to a corresponding decrease in the employment in the Electronic Equipment category and supports the contention that there may have been a flow of employees between these two industries.

The decreased size of the export sector, as determined by the economic base study, points out the reduced importance of export trade to the Dayton SMSA between 1968 and 1975. But, what was the effect of this change on firms within the area? Since the study effort could not be carried into an analysis of these firms, the migration analysis was conducted to gain insight as to whether the area firms, overall, were strong enough to sustain area employment. These results are presented in the following section.

Migration Analysis

The migration analysis technique, as described in Chapter II consisted of (1) aging the 1970 Dayton SMSA work force to find an expected value for the 1975 work force, and (2) comparing the expected 1975 work force to the actual

1975 work force to determine whether the net worker migration was into or away from the SMSA.

The 1970 Dayton SMSA work force was 326,772 (22:37-1538 to 37-1539). The results of the aging process indicated that the 1975 work force could have been expected to be approximately 329,585. The actual 1975 work force was 329,100 (14). The difference between the expected 1975 work force and the actual 1975 work force (485 people) represented less than one percent of the actual 1975 work force. Considering the assumptions made in aging the work force, this difference is not significant. One possible explanation of this result is that the migration of workers away from the area equaled migration of workers into the area. At the other extreme, is the possible explanation that workers becoming unemployed did not depart from the area. They remained and were able to find new employment. This latter explanation seems to be supported by the evidence of local employment and unemployment data collected for the 1970-1975 period. When manufacturing employment dropped to 110,900 in 1971 (see Figure 3) the unemployment rate hit 6.7 percent, the second highest level of the period (see Figure 2).

This thesis contends that the coincidence of the manufacturing employment drop and the sharp rise in unemployment may indicate that those who were laid off did not immediately leave the area. In 1973, the 1971 situation

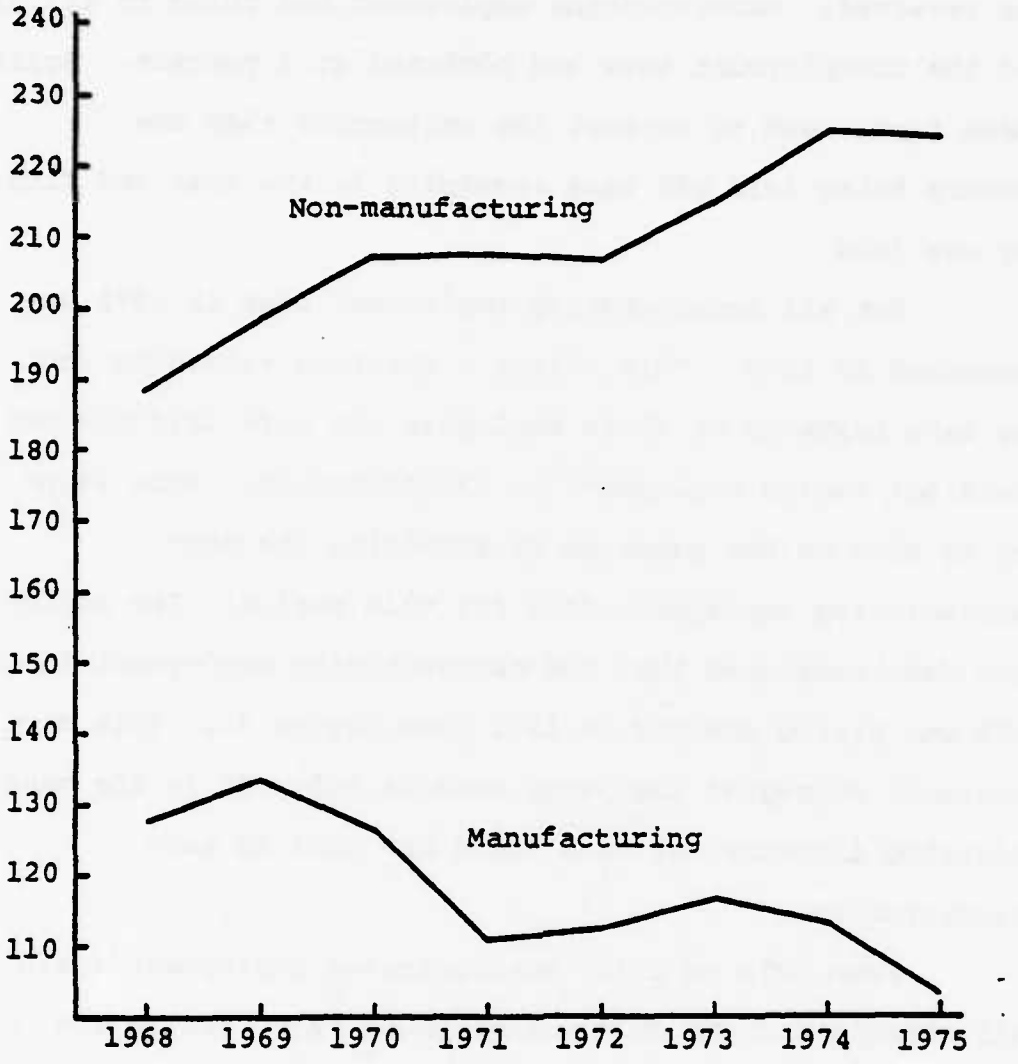

Fig. 3. Manufacturing and Non-Manufacturing Employment

Source: Ohio Bureau of Employment Services. Ohio Labor Market Information: Employment, Hours, and Earnings in Ohio, 1968-1975 (Columbus: Ohio Bureau of Employment Services).

was reversed. Manufacturing employment had risen to 117,000 and the unemployment rate had bottomed at 4 percent. Again, these facts seem to support the contention that the workers being laid off were remaining in the area and finding new jobs.

Not all manufacturing employment lost in 1971 was recovered by 1973. This raises a question regarding what may have happened to those employees who were laid off but could not regain employment in manufacturing. Some light may be shed on the question by examining the non-manufacturing employment data for this period. The employment data indicated that non-manufacturing employment in the SMSA was rising sharply in 1973 (see Figure 3). This circumstance suggested that some workers laid off in the manufacturing industry may have found new jobs in non-manufacturing.

From 1973 to 1975, manufacturing employment again fell sharply and the SMSA unemployment rate, during the same time period, rose to an all-time high of 8.3 percent in 1975. The same argument as cited for the 1971 layoffs again seemed to make sense: it was the employed local manufacturing workers whose layoffs could have caused the unemployment rate to rise so significantly.

The marked increase in non-manufacturing employment in the Dayton SMSA from 1970 to 1975 provided an answer to the question, "What was the source of employment for those

manufacturing employees who were laid off and were unable to find re-employment in the manufacturing industry?" However, this question raised yet another question. "What feature of the area's economy allowed this shift from manufacturing to non-manufacturing employment to take place?" The fact that this same shift was occurring nation-wide helps put the local situation in perspective. In addition, the location quotient for non-manufacturing employment in the Dayton SMSA indicated that non-manufacturing employment was low when compared to non-manufacturing employment in the nation as a whole.

The non-manufacturing location quotient rose from .852 in 1970 to .919 in 1975 (see Figure 4). This fact would tend to support non-manufacturing employment as a source of new jobs. It implies that the Dayton SMSA was not carrying a "full load" as far as non-manufacturing employment was concerned. In other words, there was additional capacity for more non-manufacturing workers. The contention that this idle capacity provided the source of jobs for laid off manufacturing workers, of course, assumes that these workers sought continued employment in the area and possessed, or somehow obtained, the skills to qualify for non-manufacturing jobs. In discussing the possibilities for explaining the movement from manufacturing to non-manufacturing, there is one other key fact which was presented earlier in this chapter. The number of

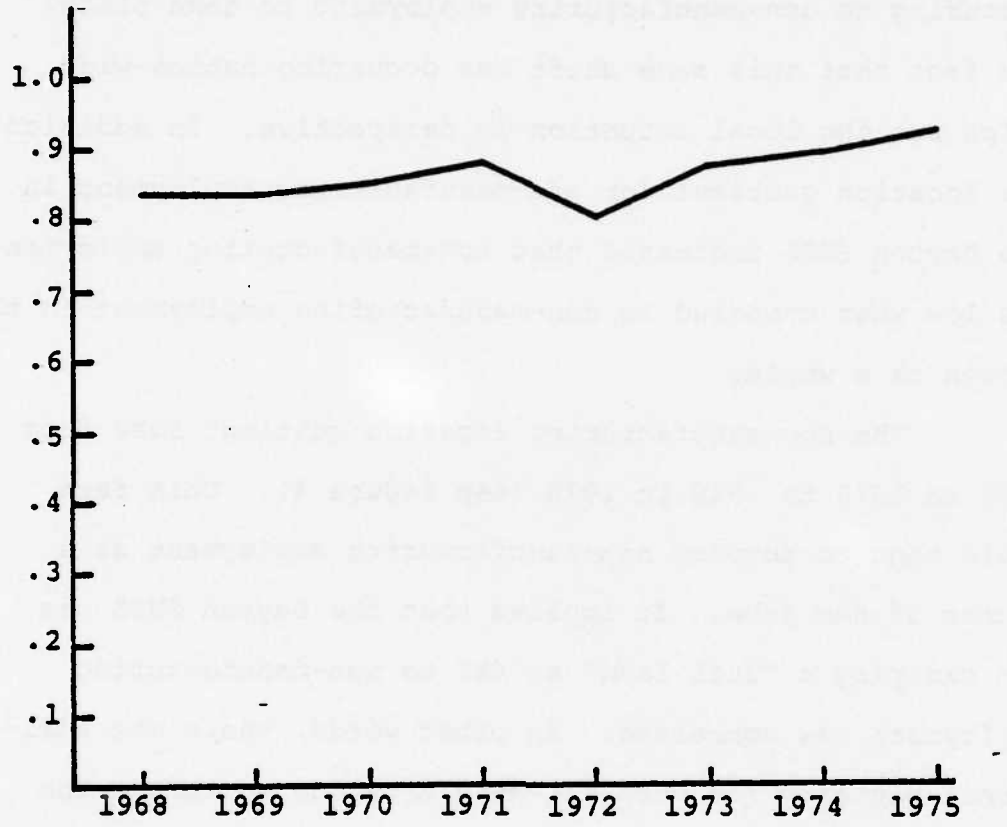

Fig. 4. Non-Manufacturing Location Quotients

Sources: Ohio Bureau of Employment Services. Ohio Labor Market Information: Employment, Hours, and Earnings in Ohio, 1968-75. Columbus: Ohio Bureau of Employment Services.

U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Current Business (July 1972, July 1974, July 1976), Table 6.3. Washington, D.C.: U.S. Government Printing Office.

non-manufacturing firms increased significantly during the 1970-1974 period. For example, the number of firms in Retail Trade; Finance, Insurance and Real Estate; and Services categories rose 13.8 percent. This is rather concrete evidence in support of the contention that area non-manufacturing industries were a source of new jobs during the period of heavy manufacturing layoffs.

In conclusion, the relatively stable unemployment rate in the area could very well have been partially attributable to the absorption of the unemployed into the non-manufacturing industries.

Cross-Sectional Analysis

In September, 1969, Seattle, Washington, began having local employment problems which generated a local recession persisting until 1972. Mass layoffs in the Seattle aircraft industry contributed to unemployment which reached a high rate of 15 percent by mid-1971. In spite of the recession, the Seattle economy showed a striking resilience. A study performed jointly by The Rand Corporation and the University of Washington found that:

> . . . consumption of goods and services did not drop as much as expected and per capita income held steady.
>
> Consumption, and thus Seattle's economic resilience, remained fairly steady because of three factors: the high pre-recession incomes of Seattle's residents, which led to a strong base of personal savings enabling the unemployed to continue to consume out of personal assets; transfer payments (particularly unemployment

benefits), which also allowed continued rising incomes of those who remained employed, which allowed them to maintain or increase their consumption [16:v].

Analysis of economic data from the Dayton SMSA in 1975 indicated that the resilience of the Dayton area economy may have been attributable to some of the same factors observed in the Seattle experience. Specifically, the high incomes of Dayton SMSA residents made it possible for them to establish a base of personal savings which, as in Seattle, enabled the unemployed to maintain, to some degree, their normal levels of consumption. Workers in the manufacturing industries, in particular, were enjoying high incomes. Manufacturing weekly earnings, for example, were 20.6 to 33.9 percent higher than the national average[7] (see Table 3.6). When the Dayton SMSA unemployment rate reached 6.7 percent in 1971, Retail Sales had increased 9.4 percent from the previous year (see Table 3.7). At the same time, bank deposits had dropped by 34.3 percent, providing support of the contention that the unemployed were able to maintain their consumption by spending from personal assets. The fact that retail sales were being maintained at a favorably high level while bank deposits were falling also lends credence to the contention that the unemployed workers remained in the Dayton area instead of migrating elsewhere in search of jobs.

[7]All dollar values and percentages related to dollar values are adjusted to their equivalent 1967 levels.

TABLE 3.6

MANUFACTURING WEEKLY WAGES

Year	Dayton SMSA	Nation	Percent Difference
1968	$153	$117.6	30.0
1969	158	118.0	33.9
1970	148	115.0	28.7
1971	151	117.4	28.6
1972	149	123.5	20.6
1973	164	124.8	31.4
1974	148	119.4	24.0
1975	145	117.6	23.3

Sources: Ohio Bureau of Employment Services. Ohio Labor Market Information: Employment, Hours, and Earnings in Ohio, 1968-75. Columbus, Ohio Bureau of Employment Service.

Council of Economic Advisers. Economic Report of the President (January 1976), p. 205. Washington, D.C.: U.S. Government Printing Office, 1976.

TABLE 3.7

RETAIL SALES AND BANK DEPOSITS

Year	Total Sales ($000)	Percent Change	Total Deposits ($000)	Percent Change
1968	1,348,051	-	-	-
1969	1,361,648	1.0	-	-
1970	1,255,848	-7.8	943,212	-
1971	1,374,339	9.4	619,243	-34.3
1972	1,494,583	8.7	1,111,814	79.5
1973	1,582,679	5.9	1,078,511	- 3.0
1974	1,470,554	-7.1	-	-
1975	1,453,350	-1.2	1,031,180	- 4.4

Sources: "Metro Market Data by States," Sales Management (June 10, 1969--p. C92; June 10, 1970--p. C90; July 10, 1971--p. C92; July 10, 1972--pp. D91,D93; July 23, 1973--p. C114; July 8, 1974--p. C116; July 21, 1975--p. C10; July 26, 1976--p. C154).

American Bank Directory, Fall Edition, 1970-1973, 1975. Nocross, Georgia: McFadden Business Publications, 1975.

As previously discussed in this chapter, even though there were fluctuations in total employment, the ending employment totals for the study period show that Dayton's economy was able to retain its workers and provide them with jobs. An examination of other economic indicators reveals the processes of change taking place in the area. These indicators are discussed in the following pages.

Population

Some economists believe that employment opportunities in a given area attract people. Others regard communities as centers of population which provide skilled labor and other inducements which attract industry. The choice of perspectives is not important. It is only important to recognize that these forces complement each other--for population to increase there must be employment potential and for employment to grow it must have population upon which to draw.

The fluctuating patterns apparent in Dayton SMSA total employment paralleled to some degree the population trends during the period (see Table 3.8).

Generally, no significant changes took place in population and the trends were comparable to other SMSA's across the nation. Between 1970 and 1975 the country's 272 largest SMSA's increased in population by only 4.2 percent. During the same period non-metropolitan

TABLE 3.8

DAYTON SMSA POPULATION

Year	Population
1969	852,700
1970	857,300
1973	862,700
1974	852,200
1975	852,900

Source: "Metro Market Data by States," Section C, Sales Management (June 10, 1970--p. C88; July 10, 1971--p. C88; July 8, 1974--p. C110; July 21, 1975--p. C104; July 26, 1976--p. C154).

areas increased by 6.5 percent (10:94). Fourteen of the largest cities lost population. The seventeen largest SMSAs lost approximately two million people. This net loss included losses of 543,900 in New York; 362,600 in Los Angeles-Long Beach; and 258,000 in Chicago. Only Houston SMSA had a substantial increase in population--162,700. Dayton SMSA, forty-fourth in size, decreased by only 4,400, although at one point (1973) there had been a 10,000 gain. In summary, Dayton SMSA population was fairly stable during the period. As might be expected by those who regard the population as a pool for skilled labor which attracts industry, the Dayton SMSA employment was also stable.

Education

Although sufficient data was not available for the entire period, it appears that school enrollment paralleled

population trends. There was a slight increase in the number of schools from 1970 to 1972 (see Table 3.9). However, enrollment dropped by 3,123 pupils (only a 1.7 percent drop). The data covered the years before and after the 1971 recession. The small change in enrollment over the recession further supported the migration analysis conclusion that there had not been a mass exodus of laid off workers from the Dayton SMSA.

TABLE 3.9

ELEMENTARY AND SECONDARY PUBLIC SCHOOL ENROLLMENT
(SELECTED SCHOOL DISTRICTS)

County	No. of Schools	Enrollment	
		1970	1972
Green	38 to 40	29,307	28,878
Miami	33 to 34	17,489	17,971
Montgomery	17	133,475	130,288
Preble	8 to 10	5,234	5,244
TOTALS		185,504	182,381

Source: U.S. Department of Health, Education, and Welfare. Director of Public Elementary and Secondary Schools in Selected Districts. Two editions--Fall 1970, 1972 & Fall 1972, 1974. U.S. Government Printing Office, Washington, D.C.

Housing

The statistics on housing or real estate movements are telling (see Table 3.10). The real estate market experienced the same fluctuations as employment during the study period. The availability of higher disposable income

TABLE 3.10

REAL ESTATE SALES
(1967 = Base)

	1962	1973	1974	1975	1976
Residential					
On the market	14,961	14,575	12,754	14,679	16,580
Number Sold	5,514	6,824	6,196	6,616	7,940
TOTAL DOLLARS (000)	112,675	140,484	122,793	131,915	159,216
Commercial					
Number Sold	-	91	73	107	110
TOTAL DOLLARS (000)	-	3,014	2,067	2,812	2,540

Source: MLS Sales Statistics, Multiple Listing Service of the Dayton Board of Realtors, Dayton, Ohio, 1972-1976.

during prosperous times, with jobs plentiful and a favorable outlook for future economic growth, generally works to generate positive movements in real estate activity. However, high interest rates can be a hindrance to expansion. In general, the interest rates remained high during much of the latter part of the period with rates riding the 8.5 to 9 percent levels. Only in the earlier part of the period, when interest rates were 8 to 8.5 percent, was there more incentive to buy homes.

The early 1970s showed a continuation of the inflationary spiral that began in the latter 1960s. Potential homeowners seemed to be waiting for interest rates to fall

back to the previous 7 to 7.5 percent levels of the 1960s before purchasing homes. By the middle of the period, however, home buyers apparently had resigned themselves to high interest rates. At this time, the high interest rate no longer was as much of a factor for home buying as were the prices of homes and the hopes for continued job availability.

Thus, the impact of job losses weighed heavily on the real estate market. Reports from the Multiple Listing Service of Dayton contained the statistics on sales volumes (Table 3.10).

Although data was not available for the years before 1972, the available data, nevertheless, reflects the recession of 1974-1975. Residential homes listed for sale as well as the number of homes sold and dollar volume of sales decreased in 1974-1975. This reaction was indicative of the "wait-and-see" policy that buyers and sellers tend to follow during bad times.

New Building Permits

New building and improvement permits data were collected for the City of Dayton, as an index to the SMSA (see Table 3.11). Both statistics reflect the 1969-1970 and 1974-1975 recession clearly. In each statistic, both the number of permits and associated dollar amounts rose and fell as employment rose and fell. The only unusual

TABLE 3.11

BUILDING PERMITS, CITY OF DAYTON
(Values in constant dollars, 1967 = Base)

Year	Single Family Number	Single Family (Dollar Value)	Total Number	Total (Dollar Value)
NEW CONSTRUCTION PERMITS				
1975	95	(1,044,888)	392	(35,824,255)
1974	10	(186,188)	233	(-7,222,835)
1973	65	(761,086)	338	(23,452,041)
1972	165	(1,963,875)	505	(17,743,715)
1971	120	(1,662,922)	522	(26,942,749)
1970	76	(942,885)	481	(15,797,339)
1969	75	(960,974)	547	(60,513,709)
1968	110	(1,561,564)	641	(23,445,606)
REMODELING PERMITS				
1975	356	(573,061)	802	(6,406,230)
1974	390	(522,455)	841	(11,750,586)
1973	355	(473,137)	797	(3,753,128)
1972	383	(547,570)	801	(3,459,110)
1971	390	(386,307)	764	(5,709,505)
1970	523	(547,799)	941	(9,874,333)
1969	560	(640,587)	1015	(13,182,054)
1968	639	(454,936)	1173	(14,126,441)

Source: Zoning Administration, City of Dayton, New Construction and Remodeling Permits. Dayton, Ohio.

trend was the unexplained increase of building permits and dollar value of those permits in 1975, which runs counter to the decreased employment. However, data reflecting this trend possibly includes building activity that began to grow as the recession period was ending in 1975. A fact which supports the high volume of permits issued in 1975 is that although there was a high unemployment rate, total employment at this time was equal to the average over the entire period.

A contrast in new housing statistics between the city of Dayton, just noted above, and the Dayton SMSA is worthy of discussion. The most evident contrast lies in the fact that housing statistics for the city of Dayton generally followed the same trends evidenced by Dayton SMSA employment, while the trends for Dayton SMSA housing did not follow the same trends as Dayton SMSA employment (see Table 3.12). Total new housing permits for the Dayton SMSA declined from 9,979 in 1971 to 3,126 in 1975, with the dollar value of those permits dropping from $144,435,000 to $78,734,000. Single family residences accounted for 4,197 (42 percent) of the 1971 total. Buildings with 5 or more units accounted for 4,738 (47.5 percent) of that total. In 1975, single family residences had fallen to 2,389, while buildings with 5 or more units had fallen to 404. Clearly, new construction of multiple unit buildings (apartments) suffered the heaviest losses.

TABLE 3.12

NEW HOUSING UNITS AUTHORIZED IN PERMIT ISSUING PLACES, DAYTON SMSA

NUMBER OF HOUSING UNITS

Year	Total	Privately Owned					Publically Owned
		Total	In Structures With:				
			1 Unit	2 Unit	3-4 Unit	5,5+ Unit	
1971	9,979	9,679	4,197	396	348	4,738	300
1972	8,282	8,282	4,863	498	372	2,549	0
1973	7,019	6,519	3,431	176	622	2,290	500
1974	4,084	4,084	3,078	136	264	606	0
1975	3,126	3,126	2,389	128	205	404	0

VALUATION ($000)

1971	144,435	137,227	82,233	4,325	3,660	47,009	7,208
1972	141,120	141,120	102,781	6,238	4,372	27,729	0
1973	131,138	118,974	83,604	2,599	8,331	24,441	12,164
1974	94,967	94,967	81,497	2,225	3,085	8,171	0
1975	78,734	78,734	69,443	2,384	2,655	4,251	0

Source: U.S. Department of Commerce, Bureau of the Census, Construction Reports: Housing Authorized by Building Permits and Public Contracts, Years 1971 to 1975, Report Nos. C40-71 to 75 - 13, Table 4. Washington, D.C.: U.S. Government Printing Office, 1972-1976.

One can surmise that the drop in new housing construction may have been due to the expectation of consumers that the relatively high mortgage interest rates prevalent during this time would decrease. Also, there is the possibility that the weakening effect of inflation on the buying power of the dollar may have eliminated many prospective buyers from the new housing market. It must be pointed out, however, that this latter explanation is merely speculation; inflation may actually have had the opposite effect. Homebuyers may have been spurred into greater purchasing activity by fears that inflation was worsening. Therefore, new housing construction might have been even lower without the impetus of inflationary pressures.

Local Government Finances

A final set of economic indicators is the revenues and expenditures of the local SMSA. Table 3.13 depicts the overall activity in the various categories.

Residential and commercial property tax collections, which make up the bulk of local tax collections, were erratic. However, it is possible that the decreased collections in 1970-1971 and 1973-1974 may have been due to delays in, and extensions for, tax payments as a result of the manufacturing layoffs in Dayton in 1970-1971 and 1974. The fact that new construction had significantly fallen over

TABLE 3.13

LOCAL GOVERNMENT FINANCES
(1967 = Base)

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
Revenues ($000)						
Property Taxes	109,732	120,962	116,820	87,777	118,912	98,309
General Sales	NA	3,933	5,709	4,772	NA	NA
Water Supply	12,673	9,873	9,756	8,929	-	-
Expenditures ($000)						
Education	134,359	156,805	161,881	143,067	-	-
Highways	11,529	9,555	16,402	16,061	-	-
Police and Fire Protection	20,707	22,502	21,213	22,563	-	-
Public Welfare	11,529	14,200	16,402	16,061	-	-
Sewerage	9,062	7,111	8,199	7,885	-	-
Direct General (Including above plus others)	271,088	307,803	315,820	303,212		
Water Supply	11,618	9,901	9,960	9,494		

Source: U.S. Department of Commerce, U.S. Bureau of the Census, Local Government Finances in Selected Metropolitan Areas and Large Counties: 1970-71, Series GF-71, No. 6, Table 2. U.S. Government Printing Office, Washington, D.C., 1972.

the two periods also helps explain the reduction in collections.

The largest dollar outlays were in Education. There was less spending in the 1970-1971 and 1973-1974 periods and more spending in the intervening two years. There was a decrease from 1971-1972 to 1973-1974, which matches the decrease in enrollment for the two years. There were no really significant changes overall. Expenditures were rather stable over the period, showing decreases in some categories and increases in others.

Local government revenues and expenditures appear to have been little affected by the stresses on the SMSA economy during the period studied.

CHAPTER IV

SUMMARY AND CONCLUSIONS

During the period 1968-1975, population in the city of Dayton, Ohio dropped, but a comparable increase in suburban areas kept total population for the Dayton SMSA fairly stable. This local movement of population to the suburbs was in keeping with national trends during the same period of time. Bureau of the Census data indicated that fourteen of the nation's twenty largest cities lost population during this period.

Analysis of the Dayton SMSA economy during this period, using the economic base study and labor force migration analysis techniques, indicates that the area's economic base was strong in terms of the diversity of its industries and in the resiliency it had demonstrated in the face of economic recession. A consideration of various economic indicators between 1970 and 1975 bears out this conclusion.

Heavy employment losses were experienced in the manufacturing industries. NCR Corporation, the area's largest employer, alone had a reduction of 15,000 jobs. Other manufacturing employers in the area eliminated 15,000 additional jobs. By 1975, however, total employment had

nearly regained its 1970 level. Its composition was somewhat altered since a shift in employment from manufacturing industries to non-manufacturing industries had taken place.

Although job losses were heavy, the unemployment rate for the SMSA remained below the state and national rates throughout the period, except for 1971 when the local unemployment rate reached 6.7 percent.

Comparison of primary industries for three heavily industrialized SMSAs which suffered large employment cuts--Dayton, Detroit, and Seattle-Everett--showed that the primary industry in the Dayton SMSA accounted for a smaller percentage of the durable goods employment than was the case in either of the other two SMSAs. This indicated that a greater diversity of industries and, thus, greater employment opportunity existed in the Dayton SMSA's durable goods industries than in those of the other two SMSAs. Consequently, Dayton SMSA was better able to absorb the large losses which its primary industry suffered.

Apparently, the diversity of employment in the SMSA fostered a capacity for absorbing surplus labor. The results of the labor force migration analysis suggest that manufacturing employees who were laid off did not leave the area but were able to find jobs in other local industries. This observation was supported by the inverse trends observed in manufacturing employment and the unemployment

rate for the period 1970-1975. Whenever manufacturing employment increased, the unemployment rate decreased, and vice versa.

During the study period, manufacturing employment fell and non-manufacturing employment rose. Non-manufacturing employment was found to be one possible source of jobs which contributed toward the stability of the unemployment rate and to the ability of the Dayton SMSA economy to provide jobs for its workers. Four possible explanations can be offered for the increased importance of non-manufacturing industries. First, the increasing emphasis in this type of employment paralleled a national trend. Second, the location quotients for non-manufacturing industries, except Federal Government, were less than 1.0, indicating that, in comparison with national averages, Dayton SMSA had less non-manufacturing employment. This meant that there may have been unfulfilled demand for employment in this sector. Apparently, even though unemployment existed, there were not enough qualified unemployed workers to fill the demand for workers in the non-manufacturing industries. Later when the large manufacturing cuts occurred, large numbers of the laid-off manufacturing workers were apparently adequately qualified to fill vacant non-manufacturing jobs.

Third, the increasing disposable real income experienced by workers prior to the 1974-1975 recession

raised the level of demand for non-manufacturing goods and services. The increased level of demand could have caused the increase of non-manufacturing employment and production. Table 3.4 shows that there was, in fact, a significant rise in the number of non-manufacturing firms in the Dayton area between 1970 and 1974.

Finally, the existence of desirable economic advantages, such as lower business taxes, may have caused the Dayton area to be more attractive to business than other geographic areas. If the Dayton SMSA, or Ohio, offered tax advantages to business there may have resulted a relocation of firms from surrounding states into Ohio and the Dayton SMSA, specifically for that reason.

Apparently, the Dayton SMSA is capable of adjusting to the evolutionary shift from manufacturing to non-manufacturing employment. In addition, the economy has proven to be capable of absorbing increased output of luxury and leisure type commodities resulting from increased non-manufacturing employment. Finally, these changes have transpired in the Dayton SMSA economy without any chronic unemployment and with little migration of workers into or out of the area.

The analysis just discussed probably would have been useful to DOD officials in the current controversy over the projected curtailment of some 800 civilian jobs at the Defense Electronics Supply Center (DESC) in Dayton.

Part of the controversy that arose there centered about the lack of an economic impact statement for the area by the Defense Logistics Agency (DLA). The DLA is currently developing such a statement. Similar statements are required by the U.S. Air Force for all its installations, as part of its commitment to comply with the National Environmental Policy Act of 1970.

A similar capability by DLA may have offset the successful delaying tactics by local leaders in their efforts to prevent the transfer of these jobs. Unsupported claims by local leaders about the extent of possible harm to the local economy through such a transfer may have been more easily countered by DLA officials with more information of those possible effects, as presented in this research. If DLA spokesmen had been aware of the effects of previous large job cuts in segments of the local economy, they may have been able to dilute the emotional claims of local leaders and, more importantly, may have prevented the delay in the development of the plan to curtail jobs. The analysis in this research has shown that the Dayton SMSA could have readily handled the loss of the 800 DLA jobs. The DLA jobs would be classified as export sector jobs for the most part. During the study period, the SMSA economy showed it was capable of withstanding the loss of tens of thousands of export sector jobs while maintaining its resilience. This apparently stemmed from the low location

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quotients in the non-manufacturing industries indicating that non-manufacturing industries had room for expansion. Thus, employees losing jobs with DESC could be absorbed by the local non-manufacturing industries.

The same sort of reaction to economic stress could be expected any time in the near future should there be a need to cut employment at WPAFB. There should be much additional attention given by DOD to the study and understanding of the local economies which host defense installations. Defense decision makers need to be aware of the part that the installations play in these local economies if they are to improve their effectiveness in management of those resources.

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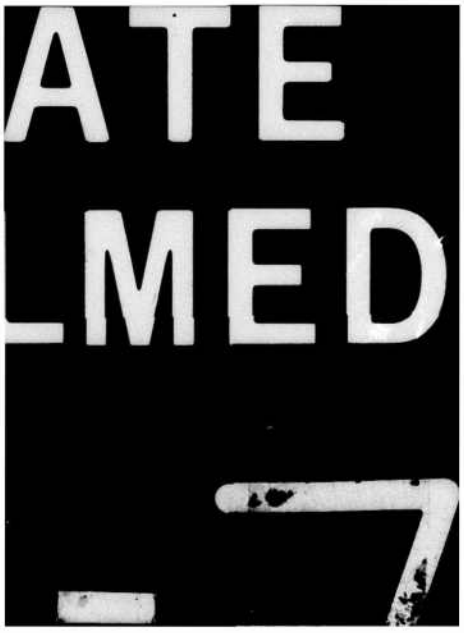
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